SECOR

SECOR
INTERNATIONAL
INCORPORATED

www.secor.com

290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
805-230-1266 TEL
805-230-1277 FAX

September 21, 2005

Dr. Yi Lu
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite, 200
Los Angeles, California 90013

Subject: **WELL ABANDONMENT REPORT**
ARCO Station No. 5041
6801 Reseda Boulevard
Reseda, California
File No. 913350561

Dear Dr. Lu:

SECOR International Incorporated (SECOR), on behalf of the Atlantic Richfield Company (Atlantic Richfield), is pleased to present this *Well Abandonment Report* for ARCO Station No. 5041, (Site) located at 6801 Reseda Boulevard, in Reseda, California (Figure 1 and 2). On June 17, 2005, the Los Angeles Regional Water Quality Control Board (LARWQCB) issued a letter stating that "no further action is required at this time" (Appendix A). It was determined that two air sparge/soil vapor extraction wells (AS/SVE-2 and AS/SVE-3), one SVE well (SVE-4), and eight groundwater monitoring wells (MW-3 and MW-5 through MW-11) installed during Site assessment activities should be abandoned.

The scope of work completed during the well abandonment consisted of the following activities:

- Obtained well abandonment permit from the Los Angeles Department of Health Services (LADHS; Appendix B);
- Abandoned two dual nested AS/SVE wells (AS/SVE-2 and AS/SVE-3), one SVE well (SVE-4), and eight groundwater monitoring wells (MW-3 and MW-5 through MW-11) by overdrilling and/or pressure grouting; and
- Prepared technical report.

SITE DESCRIPTION

The Site is an active retail gas station and AM/PM minimart located on the northwest corner of Reseda Boulevard and Vanowen Street in the City of Reseda, California (Figures 1 and 2). The Site is situated at an elevation of approximately 730 feet above mean sea level (msl). Local topography slopes to the south at approximately 0.013 feet per foot (USGS, 1967).

WELL ABANDONMENT

From August 3 through 5, and August 8, 2005, SECOR abandoned two AS/SVE wells (AS/SVE-2 and AS/SVE-3), one vapor well (SVE-4) and eight groundwater monitoring wells (MW-3 and MW-5 through MW-11) (Figure 2). Well abandonment was completed using a CME-75 drill rig equipped with 11-inch diameter hollow-stem augers provided by Gregg Drilling, Inc. of Norwalk, California (C-57 #717510). All work was directed by a qualified SECOR geologist working under the direct supervision of a State of California Registered Geologist.

The LADHS requested that all groundwater monitoring wells be destroyed by overdrilling, however due to the close proximity of overhead power utility lines, wells AS/SVE-2, MW-3, MW-5, MW-7, and MW-9 through MW-11 were abandoned by pressure grouted to their respective total depth using a six sack per 55-gallon drum mixture of Portland Low Alkali Type I-II cement mixed with approximately five percent hydrogel power. Pressure grouting was completed by pumping cement into the individual well casings, capping the wells with a cap equipped with a pressure fitting, and applying approximately 60 pounds per square inch (psi) of pressure for approximately ten minutes. This procedure was re-applied until no continued noticeable drop in the grout levels was observed. All well boxes were then jack removed, backfilled and finished flush with dyed concrete to match the existing surface.

SECOR properly abandoned air sparge and soil vapor extraction wells AS/SVE-3 and SVE-4, and groundwater monitoring wells MW-6 and MW-8 in accordance with State of California Water Well Standards (Bulletins 74-81 and 74-90). The well borings were over-drilled and destroyed utilizing 11-inch diameter hollowstem auger to their respective total depth. The destroyed wells were grouted using a six sack per 55-gallon drum mixture of Portland Low Alkali Type I-II cement mixed with approximately five percent bentonite hydrogel grout and bridged with hydrated bentonite chips from two to five feet bgs. The remaining two feet were finished with 2000-psi concrete finished flush and dyed to match the existing surface grade.

Table 1 summarizes the well construction and destruction details, tabulates the calculated volume of grout required to fill one casing volume, and includes the approximate volume of cement grout used to pressure grout each individual well.

WASTE DISPOSAL

Soil cuttings generated during drilling activities were placed in labeled, DOT-approved 55-gallon steel drums and stored on-Site. One confirmation soil sample (5041-Grab-1) was collected from the soil drums and relinquished to Del Mar Analytical of Irvine, California (Del Mar) for chemical analysis. Del Mar is an Atlantic Richfield Company-contracted and California Department of Health Services certified laboratory. Following analytical characterization, the soil drums were removed from the Site by Belshire Environmental, Inc. and transported to TPS Technologies, Inc., in Adelanto, California, for recycling. Waste disposal documentation is presented in Appendix C. Copies of the certified laboratory analytical report and chain-of-custody documentation are included in Appendix D.

STANDARD LIMITATIONS

All work was performed under the supervision of a registered geologist as defined in the Registered Geologist Act of the California Code of Regulations. The information contained in this report represents SECOR's professional opinions, and is based in part on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

If you have any questions regarding this Site or report, please do not hesitate to contact the undersigned at (805) 230-1266.

Sincerely,

SECOR International Incorporated

Richard O'Neil
Staff Geologist

REGISTERED GEOLOGIST
ANDREW JAMES MODUGNO
No. 7036
STATE OF CALIFORNIA

Andrew Modugno, R.G. No. 7036
Senior Geologist
Project Manager

Attachments: Figure 1 – Site Location Map
Figure 2 – Site Map Showing Abandoned Well Locations
Table 1 – Summary of Well Construction/Destruction Details
Appendix A – LARWQCB Correspondence
Appendix B – LADHS Well Abandonment Permit
Appendix C – Waste Disposal Documentation
Appendix D – Laboratory Analytical Reports and Chain-of-Custody Documents

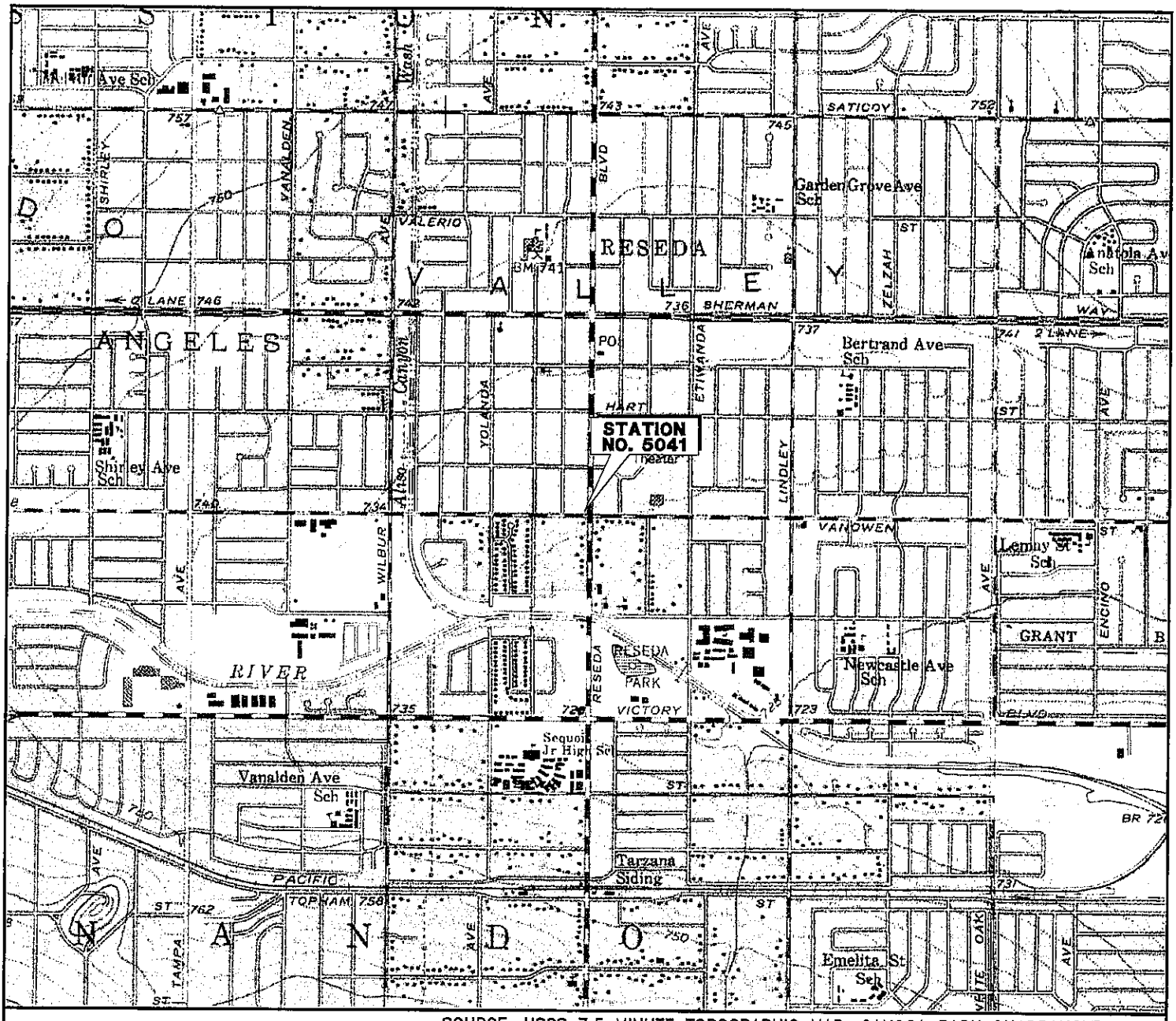
cc: Mr. Ray Vose - Atlantic Richfield Company
LADHS – Wynsor Kawamoto, Water & Sewage/ Mountain & Rural Programs – Environmental Health division, 5050 Commerce Drive, Baldwin Park, CA 91706

REFERENCES

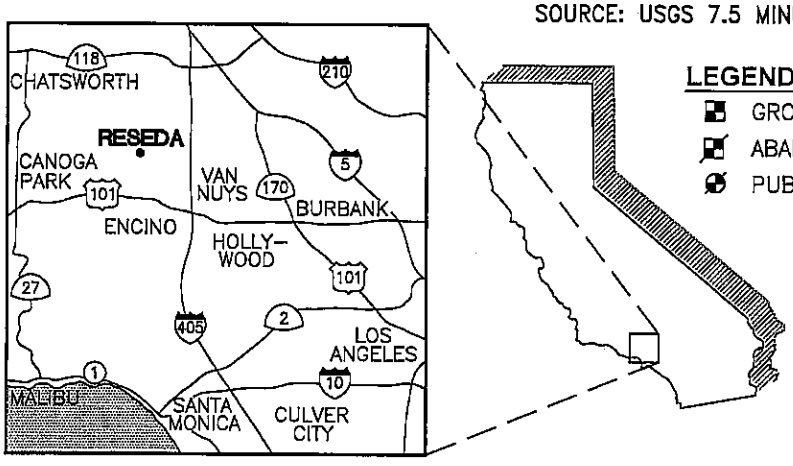
State of California Water Well Standards (Bulletins 74-81 and 74-90).

United States Geological Survey (USGS), 1952, *Canoga Park Quadrangle*, – Los Angeles County, 7.5 minute series (topographic), photo-revised 1967: USGS, scale 1:24,000, 1 sheet.

FIGURES



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, CANOGA PARK QUADRANGLE, 1952
PHOTOREVISED 1967



LEGEND

- GROUNDWATER OBSERVATION WELL
- ABANDONED GROUNDWATER OBSERVATION WELL
- PUBLIC SUPPLY WELL (ABANDONED)

N

0 2000 4000

APPROXIMATE SCALE (FEET)

SECOR
290 Conejo Ridge Avenue, Suite 200
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

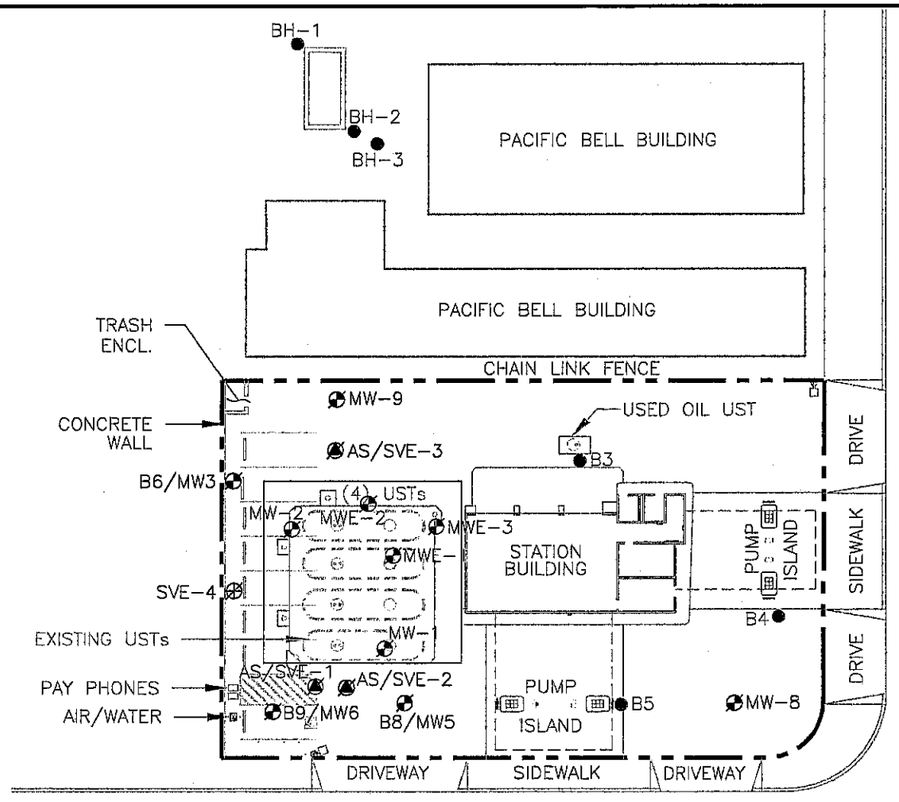
FOR:
ATLANTIC RICHFIELD COMPANY
STATION NO. 5041
6801 Reseda Boulevard
Reseda, California

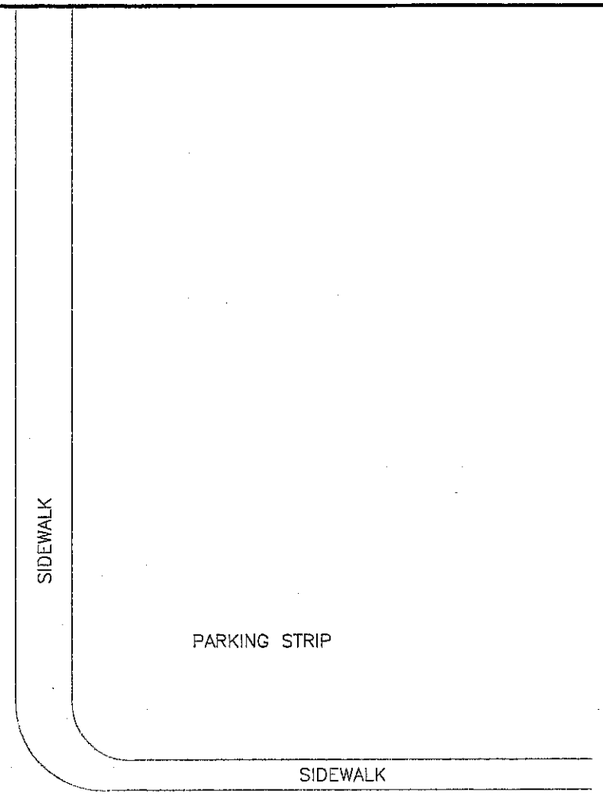
SITE LOCATION MAP

FIGURE: 1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
37BP.U5041.09.6147	R. Roman	A. Modugno	A. Modugno	09/15/05

FILEPATH:M:\ARCO\5041 Reseda\Well Abandonment Rpt_9-05\5041-SLM.dwg|troman|Sep 15, 2005 at 11:27|Layout: SLM



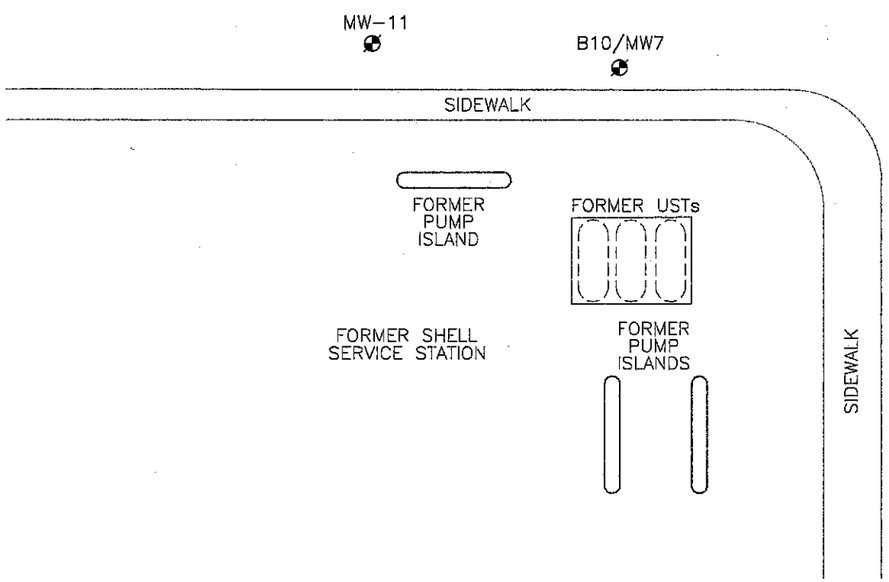


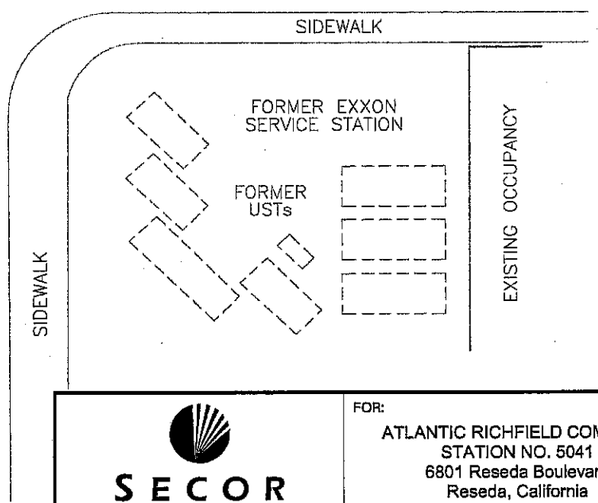
LEGEND

	APPROXIMATE SITE PROPERTY LINE
MW-9	ABANDONED GROUNDWATER MONITORING WELL LOCATIONS (SECOR, 2005)
AS/SVE-4	ABANDONED AIR SPARGE/VAPOR EXTRACTION WELL LOCATIONS (SECOR, 2005)
SVE-4	ABANDONED VAPOR EXTRACTION WELL LOCATION (SECOR, 2005)
MWE-3	ABANDONED GROUNDWATER MONITORING WELL LOCATIONS (RESNA, 1992)
AS/SVE-1	ABANDONED AIR SPARGE/VAPOR EXTRACTION WELL LOCATION (ABANDONMENT DATE UNKOWN)
B5	SOIL BORING LOCATIONS

N

VANOWEN STREET





NOTES:

1. GROUNDWATER MONITORING WELL LOCATIONS SURVEYED BY THE AZIMUTH GROUP, DATED FEBRUARY 4, 2003. SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
2. COORDINATE SYSTEM; NAD 83 CALIFORNIA STATE PLANE, ZONE 5 (FT.)

0 40 80

APPROXIMATE SCALE (FEET)

SECOR
290 Conejo Ridge Avenue, Suite 200
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

FOR:
ATLANTIC RICHFIELD COMPANY
STATION NO. 5041
6801 Reseda Boulevard
Reseda, California

SITE MAP SHOWING ABANDONED WELL LOCATIONS

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
37BP.U5041.09.6147	R. Roman	A. Modugno	A. Modugno	09/15/05

FILEPATH:M:\ARCO\5041 Reseda\Well Abandonment Rpt_9-05\5041-AWL.dwg|troman|Sep 19, 2005 at 10:31|Layout: AMWL

TABLES

Table 1
Summary of Well Construction/Destruction Details
ARCO Station No. 5041
Reseda, California

Well ID. No.	Well Abandonement Date	Well Diameter (in.)	Depth (ft. bgs)	Screened Interval(s) (ft. bgs)	Calculated Grout Needed - One Casing Volume (gal)	Grout Volume Used (gallons)	Depth Overdrilled (ft bgs)
AS/SVE-2	8/3/2005	1	27	25-27	18	25	Pressure grouted
	8/3/2005	2	20	5-20			
AS/SVE-3	8/3/2005	1	26	24-26	18	82	26
	8/3/2005	2	21	6-21			
SVE-4	8/3/2005	4	21	6-21	14	86	21
B6/MW3	8/3/2005	4	30	10-30	20	28	Pressure grouted
B8/MW5	8/8/2005	4	30	15-30	20	28	Pressure grouted
B9/MW6	8/8/2005	4	30	10-30	20	28	30
B10/MW7	8/4/2005	4	28	8-28	18	25	Pressure grouted
MW-8	8/5/2005	4	45	15-45	30	42	45
MW-9	8/5/2005	4	45	15-45	30	42	Pressure grouted
MW-10	8/4/2005	4	35	15-35	23	32	Pressure grouted
MW-11	8/4/2005	4	35	15-35	23	32	Pressure grouted

Notes:
Calculated Casing Volume = 0.18 gallons/foot for a 2-inch diamater casing; 0.65 gallons/foot for a 4-inch diamater casing
Volume of grout used is an approximate value
NA - Not Applicable
Select wells were pressure grouted due to proximity to subsurface and overhead utilities

APPENDIX A

LARWQCB Correspondence

ems ✓
enfos

California Regional Water Quality Control Board
Los Angeles Region

Over 51 Years Serving Coastal Los Angeles and Ventura Counties
Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

Terry Tamminen
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

June 17, 2005

Mr. Ray Vose
ARCO Products Co.
P.O. Box 5077
Buena Park, CA 90622

UNDERGROUND STORAGE TANK PROGRAM – CASE CLOSURE
ARCO #5041
6801 RESEDA BLVD., RESEDA (FILE NO. 913350561)

Dear Mr. Vose:

This letter confirms the completion of a site investigation and corrective action for the underground storage tank(s) formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground tank(s) site is in compliance with the requirements of subdivision (a) and (b) of section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (g) of section 25296.10 of the Health and Safety Code.

Because the subject site is currently an active gasoline service station, we recommend that you properly maintain all or some existing monitoring wells onsite, so that they would be available should further monitoring deem necessary. However, if you choose to abandon these wells, you must comply with the followings:

1. All wells must be located and properly abandoned.

2. Well abandonment permits must be obtained from the Los Angeles County Department of Health Services, Water Well Permits, and all other necessary permits must be obtained from the appropriate agencies prior to the start of work.

3. You must submit a report on the abandonment of the wells to this office by **September 17, 2005**. This report must include, at a minimum, a site map, a description of the well abandonment process, and copies of all signed permits.

Please contact Dr. Yi Lu at (213) 576-6695 or Mr. Magdy Balady, if you have any questions regarding this matter.

Sincerely,

ORIGINAL SIGNED BY

Jonathan Bishop
Executive Officer

cc: Yvonne Shanks, State Water Resources Control Board, UST Cleanup Fund
Captain Frank Comfort, City of Los Angeles Fire Department
Valerie Toney, City of Los Angeles Fire Department Underground Storage Tank
Nancy Matsumoto, Water Replenishment District of Southern California
Andrew Modugno, SECOR International, Inc.

APPENDIX B

LADHS Well Abandonment Permit

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS

WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE: 6/29/05

___ NEW WELL CONSTRUCTION	X MONITORING	___ HEAT EXCHANGE
___ RECONSTRUCTION OR RENOVATION	___ CATHODIC	___ OTHER (Specify) :
X DECOMMISSIONING	___ INJECTION	
___ OTHER: _____	___ EXTRACTION	

WELL LOCATION

SITE ADDRESS	CITY	ZIP CODE
6801 Reseda Blvd.	Reseda, CA	91355

Township	Range	Section	Map Book Page/ Grid
			Apn # 2126-022-012

NO. OF WELLS IN EACH PARCEL: 11 Attach site map with well locations

WELL STRUCTURE

Type and Size of Production Casing	
Sanitary / Annular Sealing Material	
Depth of Sanitary / Annular Seal	
Conductor Casing Seal	

CONSULTANT

Company	Secor International Inc
Contact Person	Andrew Madagno
Address	290 Conejo Ridge Ave Suite 200
City , State Zip	Thousand Oaks, CA 91361
Telephone	(805) 230-1266 Ext 237

OWNER / DRILLER INFORMATION

Well Owner	Atlantic Richfield Co.
Address	4 Centerpointe Dr.
City / Zip Code	La Palma, CA 90623
Telephone	(818) 957-1755
Well Driller	Gregg Drilling & Testing
Address	2726 Walnut Avenue
City / Zip Code	Signal Hill, CA 90755
C-57 License No.	485165
Telephone	(562) 427-6899

WELL DECOMMISSIONING

Well Depth log / records	See Attached well
Method of Well Assessment	Logs
Depth and Number of Perforations	
Type of Perforator Size of Perforations	Drill out well Casing and
Type and Amount of Sealant	Completely backfill Boring with Portland Type I/II Cement And Bentonite
Method of Upper Seal Pressure Application	Grout

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)

THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

WORK PLAN APPROVAL
This Approval is Valid for 180 Days

Date 7-19-05 REHS Myron Knudson

Conditions

OVERDRILL ALL WELLS TO TOTAL DEPTH, REMOVE ALL COMPONENTS of the well from the boreholes, VIA TREMIE PIPE, PUMP STRAIGHT NEAT CEMENT from the bottom of the boreholes - upward - to seal each borehole

FINAL INSPECTION

Date 9-15-05 REHS

PERMIT ISSUED
The well log must be submitted to this Department prior to issuance of the final approval

Date 9-15-05 REHS

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Andrew Madagno
Applicant's Signature

Applicant Name: (PRINT)
Telephone:

76A668-A
H-13 (Rev. 01/2001)

WELL LOCATION (ADDRESS)	CITY	ZIP CODE
6801 Reseda Blvd	Reseda	91355

Anticipated Start Date:	Anticipated End Date:

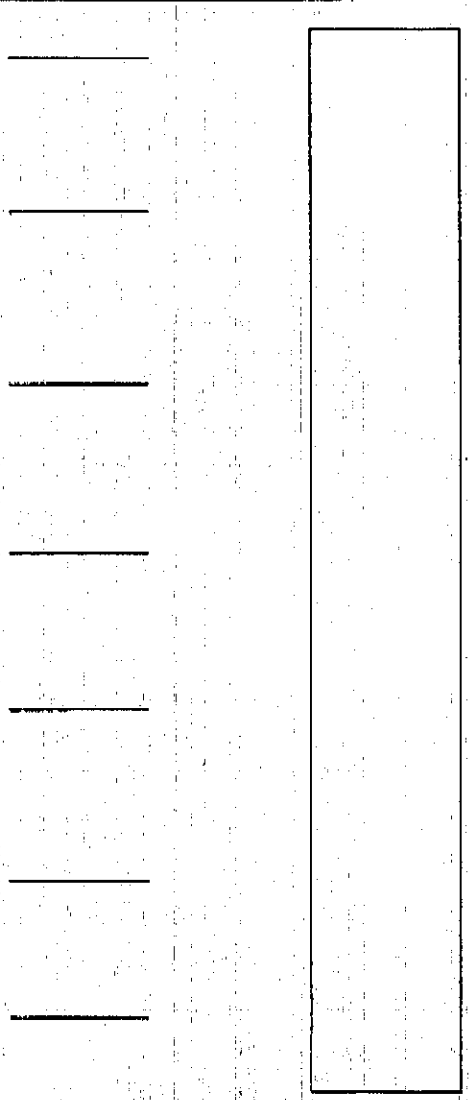
Additional Contact Persons in Case of Emergency	Telephone

GENERAL LOCATION SKETCH

Provide site specific information on WELL CONSTRUCTION LOCATION DETAIL sheet.

SEE ATTACHED Logs

WELL DECOMMISSIONING DIAGRAM



WORKPLAN DETAILS

Remove Three OFF-Site Groundwater Monitoring Wells. Remove (5) ON-Site Groundwater Monitoring wells, Remove Three (3) ON-Site Nested AS/SVE wells. All wells will be overdrilled to Remove Casing + Filter packs Upon Completion The Boring will be Backfilled using A Portland Cement/Bentonite Grout.

NOTES / COMMENTS (Department Use Only)

76A668-B
H-13 (Rev. 10/2000)

APPENDIX C

Waste Disposal Documentation

NO. 647348

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

SITE

EPA I.D. NO. CA TRANSPORTER

NAME BP WEST COAST PRODUCTS LLC ARCO #5041

ADDRESS P.O. BOX 80249 6801 RESEDA BLVD PROFILE NO.

CITY, STATE, ZIP RANCHO SANTA MARGARITA, CA 92688 RESEDA, CA 91335 PHONE NO. ( )

CONTAINERS: No. 2 VOLUME 110 gallons WEIGHT

TYPE: ☒ TANK TRUCK ☐ DUMP TRUCK ☒ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION NON-HAZARDOUS WATER GENERATING PROCESS WELL PURGING/DECON WATER

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. WATER		99-100%	5.		
2. TPH		<1%	6.		
3.			7. BESI#116512.02		
4.			8.		

PROPERTIES: pH 7-10 ☐ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PROTECTIVE CLOTHING

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Moothart BESI for ARCO 9/19/01

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME Belshire Environmental Services, Inc. Nieto and Sons EPA I.D. NO.

ADDRESS 25971 TOWNE CENTRE DRIVE 1281 Brea Canyon Road SERVICE ORDER NO.

CITY, STATE, ZIP LAKE FOREST, CA 92610 Brea, CA 92821 PICK UP DATE 09 - 19 - 05

PHONE NO. 949-460-5200 (714) 990-6855

TRUCK, UNIT, I.D. NO. 213 / 360 George Winsor 09 - 19 - 05

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME DeMenno Kerdoon EPA I.D. NO.

ADDRESS 2000 N. Alameda St. DISPOSAL METHOD

CITY, STATE, ZIP Compton, CA 90222 ☐ LANDFILL ☒ OTHER RECYCLER

PHONE NO. 310-537-7100

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS	
TRANS		S B		
C/D		RT/CD	HWDF NONE	DISCREPANCY

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
9/14/2005	BESI	707-733	07	256857	0101

Generator and/or Consultant

Generator's Name and Billing Address: BP WEST COAST PRODUCTS LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92610	Generator's Phone #: Person to Contact: FAX#:	Generator's US EPA ID No. Customer Account Number with TPS:
Consultant's Name and Billing Address:	Consultant's Phone #: Person to Contact: FAX#:	Customer Account Number with TPS:
Generation Site (Transport from): *(name & address)* ARCO #5041 6801 RESEDA BLVD. RESEDA, CA 91335	Site Phone #: Person to Contact: FAX#:	BTEX Levels TPH Levels AVG: Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES, INC. 12328 HIBISCUS AVENUE ADELANTO, CA 92301	Facility Phone #: 800-862-8001 Person to Contact: DELLENA JEFFREY FAX#: 760-246-8004	Facility Permit Numbers
Transporter Name and Mailing Address: BELSHIRE ENVIRONMENTAL 25971 TOWNE CENTRE DRIVE LAKE FOREST, CA 92610 BESI# 116622.04	Transporter's Phone #: 949-460-5200 Person to Contact: Larry Moothart FAX#: 949-460-5210	Transporter's US EPA ID No.: CAR000165175 Transporter's DOT No.: 450647 Customer Account Number with TPS: 1000193

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐	4 dms		41740	24100	23640
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐					1.17

List any exception to items listed above: 126603

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
Larry Moothart BESI on behalf of ARCO		9	8	05

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
[illegible]		9	14	05

Recycling Facility

Discrepancies:
FAC# 5041
ID# 35840

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
DE. JEFFREY / J. PROVANSOL	9-14-5

Please print or type

TRANSPORTER COPY

APPENDIX D

Laboratory Analytical Reports and Chain-of-Custody Documentation

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

LABORATORY REPORT

Prepared For: SECOR International, Inc.-Thousand Oaks
290 Conejo Ridge Avenue, Suite 200
Thousand Oaks, CA 91361
Attention: Lisa Moreno

Project: ARCO 5041, Reseda

Sampled: 08/08/05
Received: 08/09/05
Issued: 08/23/05 15:53

NELAP #01108CA California ELAP#1197 CSDLAC #10117

CASE NARRATIVE

SAMPLE RECEIPT:	Samples were received intact, at 3°C, on ice and with chain of custody documentation.
HOLDING TIMES:	All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION:	Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA:	All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS:	Results that fall between the MDL and RL are 'J' flagged.
SUBCONTRACTED:	No analyses were subcontracted to an outside laboratory.

LABORATORY ID	CLIENT ID	MATRIX
IOH0915-01	20050808-5041-GRAB1	Soil

Reviewed By:

Del Mar Analytical, Irvine
Sushmitha Reddy For Chris Roberts
Project Manager

Del Mar Analytical

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SECOR International, Inc.-Thousand Oaks
290 Conejo Ridge Avenue, Suite 200
Thousand Oaks, CA 91361
Attention: Lisa Moreno

Project ID: ARCO 5041, Reseda
Report Number: IOH0915

Sampled: 08/08/05
Received: 08/09/05

VOLATILE FUEL HYDROCARBONS (EPA 5035B/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOH0915-01 (20050808-5041-GRAB1 - Soil)									
Reporting Units: mg/kg									
GRO (C4 - C12)	EPA 8015B	5H12034	0.13	0.84	ND	0.842	08/12/05	08/12/05	
Surrogate: 4-BFB (FID) (70-135%)					*107 %*				

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Sampled: 08/08/05
Received: 08/09/05

BTEX/OXYGENATES by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOH0915-01 (20050808-5041-GRAB1 - Soil) - cont.									
Reporting Units: ug/kg									
Benzene	EPA 8260B	5H12029	0.44	1.7	ND	0.873	08/12/05	08/12/05	
Ethylbenzene	EPA 8260B	5H12029	0.45	1.7	ND	0.873	08/12/05	08/12/05	
Toluene	EPA 8260B	5H12029	0.79	1.7	ND	0.873	08/12/05	08/12/05	
o-Xylene	EPA 8260B	5H12029	0.41	1.7	ND	0.873	08/12/05	08/12/05	
m,p-Xylenes	EPA 8260B	5H12029	0.65	1.7	ND	0.873	08/12/05	08/12/05	
Xylenes, Total	EPA 8260B	5H12029	0.65	3.5	ND	0.873	08/12/05	08/12/05	
Di-isopropyl Ether (DIPE)	EPA 8260B	5H12029	0.32	4.4	ND	0.873	08/12/05	08/12/05	
Ethyl tert-Butyl Ether (ETBE)	EPA 8260B	5H12029	0.51	4.4	ND	0.873	08/12/05	08/12/05	LP
tert-Amyl Methyl Ether (TAME)	EPA 8260B	5H12029	0.56	4.4	ND	0.873	08/12/05	08/12/05	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	5H12029	0.87	4.4	ND	0.873	08/12/05	08/12/05	
tert-Butanol (TBA)	EPA 8260B	5H12029	4.4	44	ND	0.873	08/12/05	08/12/05	
Ethanol	EPA 8260B	5H12029	100	260	ND	0.873	08/12/05	08/12/05	
Surrogate: Dibromofluoromethane (80-125%)					*93 %*				
Surrogate: Toluene-d8 (80-120%)					*97 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*92 %*				

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Thousand Oaks, CA 91361
Attention: Lisa Moreno

Project ID: ARCO 5041, Reseda
Report Number: IOH0915

Sampled: 08/08/05
Received: 08/09/05

METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5035B/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5H12034 Extracted: 08/12/05											
Blank Analyzed: 08/12/2005 (5H12034-BLK1)											
GRO (C4 - C12)	ND	1.0	0.15	mg/kg							
Surrogate: 4-BFB (FID)	*0.0235*			*mg/kg*	*0.0200*		*118*	*70-135*			
LCS Analyzed: 08/12/2005 (5H12034-BS1)											**DU**
GRO (C4 - C12)	1.43	1.0	0.15	mg/kg	1.60		89	65-135			
Surrogate: 4-BFB (FID)	*0.0677*			*mg/kg*	*0.0600*		*113*	*70-135*			
LCS Dup Analyzed: 08/12/2005 (5H12034-BSD1)											
GRO (C4 - C12)	1.57	1.0	0.15	mg/kg	1.60		98	65-135	9	20	
Surrogate: 4-BFB (FID)	*0.0741*			*mg/kg*	*0.0600*		*124*	*70-135*			

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Sampled: 08/08/05
Received: 08/09/05

METHOD BLANK/QC DATA

BTEX/OXYGENATES by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5H12029 Extracted: 08/12/05											
Blank Analyzed: 08/12/2005 (5H12029-BLK1)											
Benzene	ND	2.0	0.50	ug/kg							
Ethylbenzene	ND	2.0	0.51	ug/kg							
Toluene	ND	2.0	0.91	ug/kg							
o-Xylene	ND	2.0	0.47	ug/kg							
m,p-Xylenes	ND	2.0	0.75	ug/kg							
Xylenes, Total	ND	4.0	0.75	ug/kg							
Di-isopropyl Ether (DIPE)	ND	5.0	0.37	ug/kg							
Ethyl tert-Butyl Ether (ETBE)	ND	5.0	0.58	ug/kg							
tert-Amyl Methyl Ether (TAME)	ND	5.0	0.64	ug/kg							
Methyl-tert-butyl Ether (MTBE)	ND	5.0	1.0	ug/kg							
tert-Butanol (TBA)	ND	50	5.0	ug/kg							
Ethanol	ND	300	120	ug/kg							
Surrogate: Dibromofluoromethane	*53.3*			*ug/kg*	*50.0*		*107*	*80-125*			
Surrogate: Toluene-d8	*49.4*			*ug/kg*	*50.0*		*99*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*48.0*			*ug/kg*	*50.0*		*96*	*80-120*			
LCS Analyzed: 08/12/2005 (5H12029-BS1)											
Benzene	53.8	2.0	0.50	ug/kg	50.0		108	65-120			
Ethylbenzene	52.5	2.0	0.51	ug/kg	50.0		105	70-125			
Toluene	50.9	2.0	0.91	ug/kg	50.0		102	70-125			
o-Xylene	50.3	2.0	0.47	ug/kg	50.0		101	70-125			
m,p-Xylenes	103	2.0	0.75	ug/kg	100		103	70-125			
Xylenes, Total	153	4.0	0.75	ug/kg	150		102	70-125			
Di-isopropyl Ether (DIPE)	48.0	5.0	0.37	ug/kg	50.0		96	60-135			
Ethyl tert-Butyl Ether (ETBE)	71.7	5.0	0.58	ug/kg	50.0		143	60-135			*LP*
tert-Amyl Methyl Ether (TAME)	67.4	5.0	0.64	ug/kg	50.0		135	60-140			
Methyl-tert-butyl Ether (MTBE)	63.0	5.0	1.0	ug/kg	50.0		126	55-140			
tert-Butanol (TBA)	259	50	5.0	ug/kg	250		104	65-135			
Ethanol	174	300	120	ug/kg	500		35	35-160			*J,DX*
Surrogate: Dibromofluoromethane	*47.6*			*ug/kg*	*50.0*		*95*	*80-125*			
Surrogate: Toluene-d8	*48.9*			*ug/kg*	*50.0*		*98*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.4*			*ug/kg*	*50.0*		*95*	*80-120*			

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SECOR International, Inc.-Thousand Oaks
290 Conejo Ridge Avenue, Suite 200
Thousand Oaks, CA 91361
Attention: Lisa Moreno

Project ID: ARCO 5041, Reseda
Report Number: IOH0915

Sampled: 08/08/05
Received: 08/09/05

METHOD BLANK/QC DATA

BTEX/OXYGENATES by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5H12029 Extracted: 08/12/05											
Matrix Spike Analyzed: 08/12/2005 (5H12029-MS1)						**Source: IOH0822-11**					
Benzene	65.9	2.5	0.62	ug/kg	61.7	ND	107	65-130			
Ethylbenzene	62.1	2.5	0.63	ug/kg	61.7	ND	101	70-130			
Toluene	60.7	2.5	1.1	ug/kg	61.7	ND	98	70-125			
o-Xylene	59.4	2.5	0.58	ug/kg	61.7	ND	96	70-125			
m,p-Xylenes	120	2.5	0.93	ug/kg	123	ND	98	70-125			
Xylenes, Total	179	4.9	0.93	ug/kg	185	ND	97	70-125			
Di-isopropyl Ether (DIPE)	62.7	6.2	0.46	ug/kg	61.7	ND	102	60-145			
Ethyl tert-Butyl Ether (ETBE)	93.4	6.2	0.72	ug/kg	61.7	ND	151	60-140			*LM,AY*
tert-Amyl Methyl Ether (TAME)	89.3	6.2	0.79	ug/kg	61.7	ND	145	60-145			
Methyl-tert-butyl Ether (MTBE)	83.0	6.2	1.2	ug/kg	61.7	ND	135	55-150			
tert-Butanol (TBA)	310	62	6.2	ug/kg	309	ND	100	65-140			
Ethanol	249	370	150	ug/kg	617	ND	40	25-160			*J,DX*
Surrogate: Dibromofluoromethane	*61.3*			*ug/kg*	*61.7*		*99*	*80-125*			
Surrogate: Toluene-d8	*58.3*			*ug/kg*	*61.7*		*94*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*52.0*			*ug/kg*	*61.7*		*84*	*80-120*			
Matrix Spike Dup Analyzed: 08/12/2005 (5H12029-MSD1)						**Source: IOH0822-11**					
Benzene	57.8	2.2	0.56	ug/kg	55.6	ND	104	65-130	13	20	
Ethylbenzene	53.1	2.2	0.57	ug/kg	55.6	ND	96	70-130	16	25	
Toluene	53.0	2.2	1.0	ug/kg	55.6	ND	95	70-125	14	20	
o-Xylene	50.4	2.2	0.52	ug/kg	55.6	ND	91	70-125	16	25	
m,p-Xylenes	103	2.2	0.83	ug/kg	111	ND	93	70-125	15	25	
Xylenes, Total	153	4.4	0.83	ug/kg	167	ND	92	70-125	16	25	
Di-isopropyl Ether (DIPE)	54.3	5.6	0.41	ug/kg	55.6	ND	98	60-145	14	25	
Ethyl tert-Butyl Ether (ETBE)	82.1	5.6	0.64	ug/kg	55.6	ND	148	60-140	13	30	*LM,AY*
tert-Amyl Methyl Ether (TAME)	78.2	5.6	0.71	ug/kg	55.6	ND	141	60-145	13	25	
Methyl-tert-butyl Ether (MTBE)	73.5	5.6	1.1	ug/kg	55.6	ND	132	55-150	12	35	
tert-Butanol (TBA)	272	56	5.6	ug/kg	278	ND	98	65-140	13	30	
Ethanol	206	330	130	ug/kg	556	ND	37	25-160	19	40	*J,DX*
Surrogate: Dibromofluoromethane	*54.4*			*ug/kg*	*55.6*		*98*	*80-125*			
Surrogate: Toluene-d8	*52.6*			*ug/kg*	*55.6*		*95*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*49.1*			*ug/kg*	*55.6*		*88*	*80-120*			

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Attention: Lisa Moreno

Project ID: ARCO 5041, Reseda
Report Number: IOH0915

Sampled: 08/08/05
Received: 08/09/05

DATA QUALIFIERS AND DEFINITIONS

DU	Insufficient sample quantity for matrix spike/dup matrix spike
J,DX	EPA Flag - Estimated value,Value < lowest standard (MQL), but > than MDL
LM,AY	The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
LP	Laboratory Control Sample recovery was above method control limits. Analyte not detected, data not impacted.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD	Relative Percent Difference

ADDITIONAL COMMENTS

For 8260 analyses:

Due to the high water solubility of alcohols and ketones, the calibration criteria for these compounds is <30% RSD. The average % RSD of all compounds in the calibration is 15%, in accordance with EPA methods.

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

8015 Analysis EDF Parlabel Cross Reference

Analyte	EDF Parlabel
GRO (C4 - C12)	GROC4C12

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Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EDD	Soil		
EPA 8015B	Soil	X	X
EPA 8260B	Soil	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at www.dmalabs.com.

Del Mar Analytical, Irvine
Sushmitha Reddy For Chris Roberts
Project Manager

(367)

Chain of Custody Record

Project Name: Well Abandonment/Drum Sample
BP BU/AR Region/Enfos Segment: Retail
State or Lead Regulatory Agency:
Requested Due Date (06/10/05):

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Lab Name:	Del Mar Analytical	BP/AR Facility No.:	5041	Consultant/Contractor:	SECOR International, Inc
Address:	17461 Derian Ave Ste 100	BP/AR Facility Address:	6801 Reseda Blvd, Reseda, CA	Address:	290 Conejo Ridge Ave Suite 200
	Irvine, CA 92614	Site Lat/Long:	34.194/-118.536		Thousand Oaks, CA 91361
Lab PM:	Chris Roberts	California Global ID No.:	T0603702220	Consultant/Contractor Project No.:	37BP.05041.06
Tele/Fax:	949-261-1022	Enfos Project No.:	G0B1N-0001	Consultant/Contractor PM:	LISA MORENO/ANDY MODUGNO
BP/AR PM Contact:	RAY VOSE	(Provision) or RCOP (circle one)		Tele/Fax:	805-230-1266/805-230-1277
Address:	4 Centerpoint Dr.	Phase/WBS:	4	Report Type & QC Level:	Standard
	La Palma, CA	Sub Phase/Task:	Analytical	E-mail EDD To:	bauchard @secor.com
Tele/Fax:	818-957-1755	Cost Element:	Sub Contracted Cost	Invoice to: Consultant or BP or (Atlantic Richfield Co.) (circle one)	

Lab Bottle Order No: TOH0915

Item No.	Sample Description	Time	Date	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Air	Laboratory No.	No. of Containers	Preservative: Unpreserved	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: HCl	Preservative: Methanol	Requested Analysis: GRO C4-C12 (8015)	Requested Analysis: BTEX/OXY/ET (8260)	Sample Point Lat/Long and Comments
1	20050808-5041-Grab1	1130	08/08/05	X				6	X					X	X	
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Rich O'Neil	Rich O'Neil	08/08/05	1227	Glenn Spain DMAT	8/9/05	1100
Sampler's Company: SECOR	Glenn Spain DMAT	8-8-05	1645			
Shipment Date:						
Shipment Method:					8/9/05	1645
Shipment Tracking No:				DMAT		

Special Instructions:

Custody Seals In Place Yes___ No X Temp Blank Yes___ No X Cooler Temperature on Receipt 3 °F/C Trip Blank Yes___ No X

Distribution: White Copy - Laboratory / Yellow Copy - BP/Atlantic Richfield Co. / Pink Copy - Consultant/Contractor

BP COC Rev. 4 10/1/04